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RUNNING NATURE CLUBS IN SCHOOLS

by Ashish Kothari

The resources on which human civilisation has survived for thousands of years are dying out, indeed being killed by a world hungry for immediate comfort and unmindful of the future. Unless something is done fast, the next generation will have no oil to run on, no forests to provide oxygen and stop floods, no clean water to drink, no clean air to breathe, and no peace and quiet among the growing din of 'civilization'. Fortunately, today there is a growing awareness and concern for the degradation of our environment. All over the world environmental movements on both a small-scale level and at large-scale governmental level have sprung up. In Western countries where ecological destruction has been the greatest in the past couple of centuries these movements have achieved national importance. Developing countries on the other hand, being still engrossed with problems of poverty and internal instability, are yet to take serious notice of the growing threat to their environment.

What is however more critical is that the youth of India, by and large, remain insensitive and unconcerned about their own future. Awareness needs to be created and their energy must be channelised before it is too late. In a few pockets of rural India, environmental movements like the Chipko Andolan have attempted to involve youth. But what about our urban areas? Our cities are fast becoming ghastly concrete jungles whose youths know the delights of video games but not those of nature. There is a need for urban youth to become not only environmentally conscious but also to become active in the fight to secure a better future. One such step towards this is the growing Nature Clubs Movement.

Nature Clubs - How to Start

The Nature Clubs of India (NCI) movement was launched on 1st July, 1976 by the World Wildlife Fund-India. Starting with about 75 clubs in the schools of Maharashtra and Gujarat, it has today spread to over 500 schools all over India. These clubs get a quarterly newsletter and information on nature projects from WWF. Regular film shows are also arranged by the WWF. Once or twice a year a field trip and camp is held for NCI members in one of India's still-existing natural areas.

The WWF requires a minimum of 15 students (whose age is at least 10 years) in order to register as a Nature Club. The registration fee is Rs. 10/- and each student has subsequently to pay Rs. 2/- per year. Registration forms and more information can be obtained by writing to The Education Officer, World Wildlife Fund-India, Hornbill House, Opp, Lion Gate, 5 Bhagat Singh Road, Bombay-400 23.

No doubt there are certain advantages in joining the WWF as a Nature Club, but to be frank as a Nature Club Adviser, I have found that WWF's Nature Club Movement has failed to get off the ground in Delhi. Only 2-3 schools here have active clubs (of which one is not even registered). That they are active and aware is not essentially due to WWF's efforts but mainly to the enthusiasm and interest amongst the club members. This may be because WWF pays far more attention to the Western region of India, since its headquarters are in Bombay, or because there is a lack of motivated teachers and interested students in Delhi's clubs. I suspect a combination of both. In any case, what is important is not whether to register with WWF or not, but the presence of a motivated, committed teacher and a group of enthusiastic students. Put these together, use a bit of initiative, and you have a Nature Club. At times even a teacher may not be needed; an environment-conscious ex-student or senior student would be enough to coordinate the group. St. Columba's School has a group of such students who run a fairly active group. Frank Anthony Public School students have attempted activating a group of students with very little help from teachers. Naturally a teacher is often necessary in the case of young students, as also to gain the approval of parents and school authorities when planning a trip in or out of Delhi.

What to Do :

This is the part where most clubs get stuck—they have "nothing to do". This complaint is hardly justified. With a bit of imagination, one can think up a thousand and one projects that club members could undertake. Before starting the students on some work, it is important that they be aware of why they are doing it. Otherwise, conservation will simply become another activity which has to be carried out because the teacher says so. Members must know that it is their own future which is imperilled; they must realise that they are the only ones who can do something about it; they must be environment conscious. Such an awareness can be created by various methods, both in the classroom and out in the field. Slide shows and films are the best indoor means of communicating environmental issues. It must be noted that mere lectures, unless delivered by experts (both in environment and in speaking!) can be extremely boring and will be thoroughly disliked by club members. The Delhi branch of WWF has a few films and slide shows with taped commentaries, on issues like wildlife, ecosystems and the pollution threat to the Taj Mahal. These can be lent on request to a recognised (not necessarily registered) club Kalpavriksh, Delhi's environmental action group (more about that later), also has a few slide-series on wildlife and Delhi's environmental problems which can be used. Other informative and interesting approaches are arranging quizzes and debates on relevant topics.

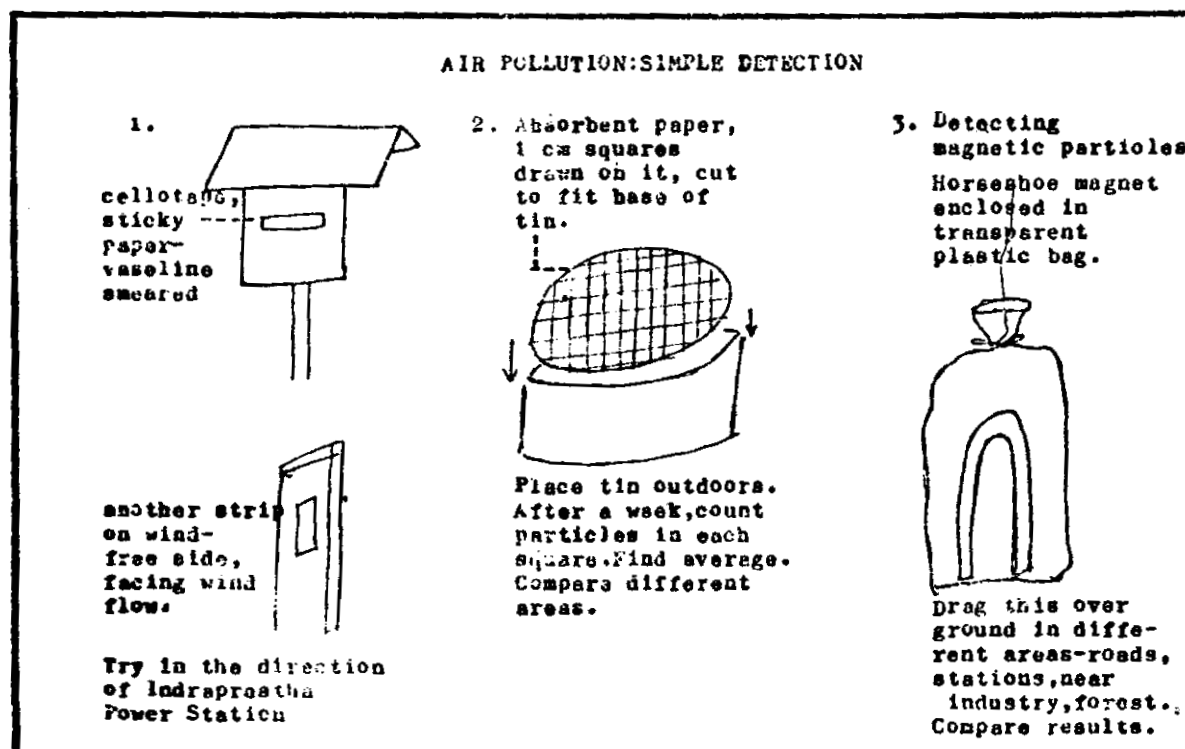
Once a sufficient degree of awareness and interest has been created, the club can start working on a variety of projects. It is a good idea to divide the students into small groups, each of which can take up a specific project. Ideas, information and experiences can then be exchanged between them. One project which gets students particularly involved is tree-planting. Digging pits, planting saplings or seeds and carefully nurturing them till they can grow on their own can go a long way in inculcating a student's love for nature. Simultaneously the useful roles of a tree (producing oxygen, binding

soil, attracting rain, providing shade, reducing pollution etc.) must be explained to the students. Contact a nursery or Kalpavriksh on details of tree-planting— the season to do this is just around the corner. Another project involving trees and bushes is to label the ones in the school— the labels should preferably be in at least two languages and should be tied on rather than nailed to the tree.

Projects involving reduction of wastage and curbing the pollution of air and water can also be attempted. A compost pit is an excellent example – it effectively uses garbage which would otherwise be burnt or thrown into our lives and it provides organic manure which can be used in the school lawns. Digging such a pit (it should be at least 8 × 8 ft and 4.5 ft deep) will give the members some strenuous exercise and bring them “closer to the soil”.

Another project of interest is the detection of air pollution. Details are shown in the figure.

(From Bharat Scouts and Guides. July 1979. Vol. 22. No. 7)



Other projects in the field which could be taken up include paper and tin recycling, making of small-scale alternate energy models (e.g. solar cookers which would demonstrate pollution-less renewable, free energy) and models of water treatment plants.

Younger students should be asked to build up scrap books or files on specified animals or plants with diagrams, photographs and written material from wherever they can be collected. Please do not ask students to collect plants or insects – it is only another cruel way of injuring nature and would run contrary to what Nature Clubs are all about. A regular bulletin-board could be assigned to the club so that its members could display their talents and give the rest of the school the message of conservation.

One of the most rewarding and informative programmes a club can take up is to arrange field trips in and out of Delhi. I have seen from students' reactions that this is by far the most exciting part of Nature Club activities. The length and duration of such trips will obviously depend on finances, age and willingness of members; but one or two trips a year are a must. Even in city areas, one doesn't have to go far to find nature. Delhi is fortunate in that it still has some beautiful green areas left. The southern ridge forest opposite Maurya Hotel or the northern ridge near the university are two of Delhi's wild life areas where the incredible beauty, complexity and serenity of nature can easily be experienced. Trips to such areas will show the seasonal variations in vegetation and bird life. And talking of wild life, Delhi in winter is a sight to see, with over 400 species of birds collecting there. A walk down the Jamuna will be rewarded by the sight of literally thousands of ducks in the water. The Delhi Zoo at any time, shows the enormous variety of animal life present in the world. It is important that during these trips members do not see only the pleasant sights, but also note disturbing factors like pollution or tree-cutting which contribute to making Delhi a more unpleasant place to live in. A visit to the National Museum of Natural History is also a rewarding experience. Trips out of Delhi could be planned to nearby wildlife sanctuaries. These have to be carefully planned out; WWF could help supply information about them.

Over all this it is important that the club has the sympathy, if not active support, of the school administration. Official indifference or hostility can make all efforts futile. Recently the saplings planted by the members of a school club were uprooted, and the students are too scared to ask what happened!

Kalpavriksh —Delhi's Environmental Action Group

Feeling the urgent need for a youth-centered environmental movement in Delhi, students from various schools and colleges got together to form Kalpavriksh, basically an action-oriented group. Kalpavriksh has in the past successfully protested against the destruction of the Ridge and other forests in Delhi, and also raised its voice against indiscriminate wildlife shooting and the dangerous smoke pollution caused by Indraprastha Power Station. Its members run the few active Nature Clubs in Delhi, and try to increase their number by giving slide shows and talks on various environmental issues. It has organised frequent excursions in Delhi and even a few trips out of Delhi. The most ambitious trip so far has been a 15-day trek through Tehri Garhwal where the Chipko Andolan is active. Recently it held a meeting of environmental activists from various parts of India, organised a bird-count and opened a dialogue with the Lt. Governor and Government horticulturists on the issue of saving and enlarging Delhi's green areas.

Kalpavriksh believes that individuals can do a great deal to help avoid the 'eco-catastrophe' that faces us. The Nature Club movement, if it picks up and spreads, could play a vital role in channelising India's youth into a strong, effective, long-term environmental movement.

(Ashish Kothari, a 1st year student of Sociology in Delhi University, has been an active member of the Nature Club of Sardar Patel Vidyalaya. He now functions as the Advisor to the same Club. We will be happy to introduce him to any other schools in Delhi interested in starting a Nature Club. Ashish is also active in Kalpavriksh and is one of the editors of their bi-monthly Newsletter, Nature.)

The August issue of PATHWAYS will carry an article on 'TREES' - which we hope can form the basis of a project in your school, next term.

—Gayatri Moorthy.

GEOGRAPHY OR HISTORY?

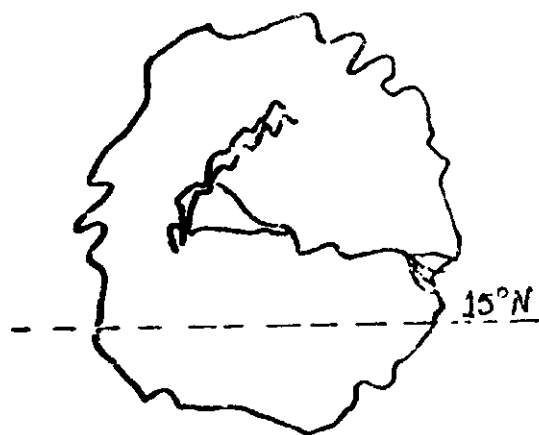
by Saroja Srinivasan

It was the history period. I had to teach the last lesson in the history book 'India and the World'. I don't quite know how geography got dragged into it but there I was, talking about the inter-relatedness of geography and history. I was telling the children, how, for a better understanding of the people of a country we had to know a bit about their history and how this history was often influenced by its geographical location.

"One could find out quite a lot about a country just by looking at its geographical location we needn't even go to that place to see how it would be" I said warming up to my theme.

"How Madam?" interjected Munish, with a puzzled expression. How indeed? How best could I explain my statement? For a moment, I was floored—I hadn't planned my lesson this way at all! I had to think—

Suddenly a brainwave hit me. Why not play a little detective game with the children? With a few deft strokes I drew a 'country' on the blackboard. It was an island with an indented coastline. I drew a mountain range across it and then added a river originating from there. My "country" looked like this.



I looked at the children who had been watching me with fascination, wondering what on earth I was doing. "Look", I said, "this is an imaginary country named 'Kalpanadvipa'. The only information I can give you is that the 15°N latitude passes through it. Now tell me all you can about this country".

At once, there was an uproar. All of them started shouting excitedly and jumping about in their seats. This wouldn't do! There had to be some other outlet for their excitement. "I will give you two minutes", I said. "Write down all you know about this place".

With the comment; "only 2 minutes" they went to work. For some time peace prevailed, broken only by an excited whisper or an occasional giggle followed by "Shh! Shh!". Every now and then they would look at the blackboard, nod sagely and then furiously scribble something.

"Time up".

The children reluctantly put down their pens. "Good! Let me see what you have found out". Immediately a forest of hands shot up. "Rajesh?" He stood up, feeling important. "It would be very hot there," he said, with an air of confidence.

"Why?"

"Because you see, it is in the tropical zone".

Many children in the class nodded in agreement but some thought otherwise. Rajiv voiced his disagreement—"I don't think it would be hot. The sea surrounds it and so the climate would be moderate" he said.

Ashish stood up. "Why it could be hot and sultry too. The sea could make it quite humid, just like the equatorial islands".

Rekha put up her hand. "I think it would be hot and sultry during the day but it would

rain in the evenings. The water would evaporate and come down as rain".

"Oh, you mean the convection current?" nodded Rajesh. "Yes, it is possible, but I think in that case it would become snow or sleet in the mountains. It must be quite cold there because of the altitude.

It was Manish's turn. "Madam, I think it would be raining heavily on one side of the mountain ranges. The other side could be dry" he said.

"Like the Western Ghats?" asked Komal, "Will this country monsoon rains?"

"But what if the wind passed it by, like it does near the Aravalli ranges?" asked Amy. "Then it wouldn't rain so heavily".

We can't say any thing unless we know the wind direction" concluded Rajesh.

I thought it was time to intervene. "What about its vegetation?" I asked.

"Dense forests!" shouted Rajiv "just like Zaire"

"Need not be", disagreed Komal. "Coastal areas could be sandy and have coconut trees".

"What type of trees would there be in the forests?" I asked.

"Trees with thick and broad leaves because the land would be fertile. There would be tropical forests"

"What other crops would be there?"

"Rice" said Neeru. "Look, there is a plain and there is a river. So it would be just like the Gangetic plain with plenty of rice."

"Anything else?"

"There would be lots of people too. This could be the most densely populated area in the country. People always settle down near the rivers, don't they?" asked Munish. The influence of learning about the Indus Valley Civilisation, I thought to myself.

"Which area do you think would be the most fertile?" was my next question.

"This" said Renuka, pointing to the mouth of the river. "The river would bring all the silt and deposit it here".

"A delta" shouted Mohit, trying to say something.

"What would the people eat?"

"Rice and fish" chorused the children looking at me with disgust for asking such a 'silly' question!

"And coconuts" added Sangeeta.

"In fact, they could even be exporting coconuts. Look at the coast line" commented Anupma.

"Why not fish?" asked Navin. "They could even have fish farms as in Japan".

"You haven't said anything about the ocean currents" questioned Rajesh.

"What do you think Rajesh?"

"There surely would be a warm current since it is near the equator", said Rajesh and added "If there is a cold current meeting it then there would be fog and also lots and lots of fish".

"Oh yes" agreed Rajiv "just like in Japan, isn't it, Rajesh?"

"Looking at the coast line, what else can you say, Komal?" Komal looked at the map intently.

"It would have many natural harbours. So there would be plenty of trade contacts", she said.

"They would have to go by ships to all places" said Rekha. "They can't have any roads connecting them to other countries. I think it would be fun living in that country, going by boats and ships".

"Why, they could use aeroplanes!" said Munish.

(Contd. on page 22)

LANGUAGE GAMES

by Chitra Subrahmaniam
Sardar Patel Vidyalaya, Delhi

I give below a few illustrative games that could be played with children (as a teacher or a parent) to improve their English. While teaching grammar and spelling, one faces problems of motivation. However, as every child has a natural impulse to play games, they can form a motivational devices and make learning a joyful experience. Some of the games given here are adapted from the book 'Games to Improve your Child's English' by Abraham Hurwitz and Arthur Goddard. The games can be played at elementary, Intermediate and advanced levels. They can be used for a small group of two or three children or for larger groups.

One can begin with Games with Rhymes. There are as many as 16 variations suggested. The ones given below are called 'Jocular Jingles.'

1. CON-VERSE.

This game calls for nimble wit and a ready stock of rhyming words. The object is to keep the ball of conversation rolling. The players carry on a conversation in rhyme. It might go like this :

Player 1. How is he ?

Player 2. As good as a pha

P 3 : Where did you go ?

P 4 : To chase a doe

P 5 : Did you read the book ?

P 5 : I could not have a look.

—and so on

One point is scored for each appropriate line. If player cannot think of one, he may challenge the preceding player to supply one of his own. If the preceding player cannot do so, he is penalized two points. Extra points could be earned by adding a line with a third or even a fourth rhyme.

2. Another variation is called 'AD-VERSE' where a story is told in rhymed verse. It may go like this.

Player 1. I went to Delhi

To meet Miss Nelli

She gave me a rupee

To buy some bhel-puree

P 2. The bhel-puree was wet
So I bought a net

P 3. The net was big
So I got a fig

P 4. The fig was stale
So I bought a pail

The results are often nonsensical, sometimes hilarious.

3. There are numerous 'Vocabulary- Building' games one can think of. Given below is a game called 'Who's Zoo'. This is mainly for the elementary and intermediate levels. It teaches children to use precise words in referring to animals of different sex, the young ones, groups of animals and the sounds made by them. A deck of playing cards (53 in all) is prepared, each with a word written on it. The word could be chosen from a dictionary to suit children of different levels of maturity. A sample is given below.

Animal	Male	Female	Young one	Group	Sound
hound	dog	bitch	pup	pack	bark
goat	billy	nanny	kid	flock	bleat
horse	stallion	mare	colt, foal	herd	neigh whinny
duck	drake	duck	duckling	flight	quack

One card marked 'JOKER' should also be included. Cards are shuffled, cut and dealt out. The number of cards in each hand depends on the number of players. The remaining cards are laid face down in a pack on the table. The object of the game is to put together cards with words that go together in sets. Some words like 'flock', 'herd' and 'cub' may be used in a number of different combinations. A player may accumulate words in his hand until he has a complete set. Each player, in turn, first discards one card laying it face up on the table. He may then draw a card from the top of the pile or take the one discarded by the previous player. He may play the JOKER any way he wants but must specify the word he wishes it to represent. Ten points are credited for laying down a complete set of six. A matched pair of cards counts for two points, a set of three counts for three points and so on. In a classroom one group can play this, while the others are engaged in a different game.

4. This game, for reviewing parts of speech, is called 'GRAM—O'. It is suitable for elementary and intermediate levels. The materials needed are blank cards, small slips of paper and small coloured squares of cardboard. The materials require some preparation but once they have been produced they can be used over and over again. Each participant receives a card like the one shown below. Of course

aside from the top line GRAM—O all cards are different — no two are wholly alike. The player also receives small coloured squares of cardboard to be placed over the boxes on this card. A number of slips have to be prepared with one letter of the word GRAM O, followed by a word. For example, (i) G—Into; (ii) M—Sing; (iii) R—Swiftly.

Each player picks up these slips, one by one and reads out to the group what is written on them. The players are expected to identify what part of speech the given word is. In the example (i) given above, 'into' is a preposition. All the players then check if they have a box labelled 'Preposition' in the vertical column under G. Whoever has it, writes the word 'into' on a piece of coloured cardboard and places it over that box on his card.

The game proceeds till one of the players has covered a whole row horizontally, vertically or diagonally. He calls out 'GRAM-O' and gets his card examined. He gets no credit if he has incorrectly identified any part of speech. The game can be made more interesting if the words chosen are capable of being used as more than one part of speech. Then it should be given in a sentence to help the student identify the part of speech. 'Well' can be a noun, an adjective, an interjection or an adverb depending upon its meaning.

G	R	A	M	O
Adv	Noun	Pron	Adj	Interj.
Adj	Adv	Infinitive	Adv	Noun
Noun	Prep	Free space	Participle	Gerund
Prep	Pron	Verb	Prep	Conj
Verb	Adj	Adj	Verb	Article

5. Another game is 'Sentence-Forming Fun'. Select a random list of words, and write them down vertically. I have chosen five words at random.

seen
man
carelessly
rough
fall

Each player, within a given time, has to compose a sentence using all the words in the given order. The person writing the best sentence wins.

One sentence could be :

Seen by the man, the thief ran carelessly over the rough patch on the farmland only to fall into a pit.

One can increase the number of words to make it more complicated.

6. A game I have successfully tried out in my class is building a small story from a single given sentence by adding adjectives, phrases and clauses. One such story, in my class, went like this.

"There was a key...There was a golden key ...There was a crooked, golden key...There was a crooked, golden key in the palace...there was a crooked, golden key in the Queen's palace... There was a crooked, golden key in the Queen's red palace"

7. A game I recently tried out in class V was a 'Word Charade'. It began as a 'Dumb Charade' on books. Later, I used it to make the children learn a lot of words (nouns like cashier, milliner, kennel, mint etc, adjectives and verbs) from their text book. The class was divided into two groups. I whispered a word (like 'warrior') or a group of words (like 'a regiment of soldiers') or a sentence (like 'the surgeon performs operations') to a child. We had earlier agreed upon certain signs to indicate articles, prepositions and rhyming words. The child acted out each of the words and the group guessed them one by one. I was quite surprised to find that within one period, almost the entire group, knew what an article is and what prepositions are. I had never taught these two parts of speech before. This game can be tried for verbs like shrug, loll, wring, saunter

munch, their synonyms and adverbs like elaborately, hesitantly, furtively etc...

8. A game that can make children talk more in English, that teaches the players the correct use of different parts of speech, broadens their vocabulary and stimulates imagination is an old favourite called 'Tea kettle' or 'Coffee pot'. The larger the group, the greater the fun.

When the 'victim' is out of the room the group agrees on a verb a noun, an adjective or an adverb to be represented by the word 'coffee-pot'. The victim asks questions using 'coffee pot' in an effort to find out what it is. He has to think of questions that will lead him to the answer. Suppose for example 'Coffeepot' represents an adjective 'beautiful', the questions could be : "Can a person be coffeepot? Can a flower be coffeepot? Are you often coffee pot? Are coffeepot people in great demand? and so on. If it is say a noun 'farmer,' the questions could be : "Is coffeepot animate or inanimate? Is coffeepot an animal or a vegetable? Can coffeepot walk?"

The game proceeds until the victim guesses the part of speech. He starts with a total of 100 points. He is penalized one point for every wrong guess and for every question he has to ask before he guesses the right answer. With this arrangement the game can also be played between two teams. The victim is chosen alternately from each team. Any member of the opposite team can answer the questions. Each team starts with 100 points. The game can be made more complicated by requiring that questions be so phrased as to admit only of 'Yes', 'No' or 'I don't know' by way of answers.

9. Follow the Formula helps children to learn accepted patterns in sentence construction. A formula is written on the black board:

adjective, proper noun, verb, adjective, noun
Each player, within a given time limit must compose a meaningful sentence according to this pattern. It might go like this :

Player 1 : Naughty Raju beat tiny Sunita
Player 2. Athletic Harl performs difficult exercises

Player 3. Stupid Mohan eats rotten fish
The game may become complicated by including adverbs, prepositional phrases etc. Several formulae can be strung together to make a single paragraph. Later the children can begin with an adverb and make interrogative and exclamatory sentences as well. —

SETTING BEHAVIOURAL OBJECTIVES - IV

by Jose Paul

Education aims at the development of the whole personality of the student—his mind, his heart and his hands. Growth must take place in the cognitive, affective and psychomotor domains. The 10-year curriculum plan envisages that as a result of learning in our schools, a student will become an agent of social change, national integration and social justice, that he will play a role in modernising society. He will bring the school closer to society; cultivate moral, spiritual and democratic values, international understanding, team spirit, truthfulness, loyalty to duty. He will develop an insight into human relationships, an understanding and appreciation of different cultures. His education will lead him to scientific methods of enquiry, develop originality, creativity, clear thinking, effective communication and personal forms of expression. He should acquire mastery of his body. He will have compassion, endurance, courage, resourcefulness, an ability for decision-making and above all attain self-actualisation. If we analyse these educational goals, we will find that 80 to 90% of them belong directly to the affective domain. If our educational system has failed miserably to produce "the Man" it envisages, it is because educational practices in schools direct their time and energy solely to developing the cognitive domain of learning, paying only lip service to the affective domain. Today cognitive development is equated with mastery of prescribed syllabus content. Knowledge and understanding of a variety of subjects has more importance than realisation of how these subjects can help the child in his life. The activities of the school, the reward and recognition system, examination grades and promotions, in fact almost all educational practices, reflect a school's preference for cognitive achievement.

A good comparison of the cognitive and affective processes in teaching is given by Serling M. McMurrin in his book "Towards Affective Education". He says, "The cognitive function of instruction is directed to the achievement and communication of knowledge, both the factual knowledge of the sciences and the formal relationships of logic and mathematics—knowledge as both specific data and generalised structure. It is discipline in the ways of knowing, involving perception, the inductive, deductive and intuitive processes, and the techniques of analysis and generalisation. It involves both the immediate group of sensory objects and the abstractive processes by which the intellect constructs its ideas and fashions its ideals. The affective functions of instruction pertains to the practical life—to the emotions, the passions, the dispositions, the motives, the moral and aesthetic sensibilities, the capacity for feeling, concern, attachment or detachment, sympathy, empathy and appreciation."

The affective domain of a person is not merely a bundle of urges and feelings. It is the basic force that controls and directs the behaviour of a person. It determines the individual's life and ultimately the life of an entire people. This gives us an idea of how important the affective development of the child is. Consequently, both the teacher and the school have to play a vital role in the building of the 'whole man' or 'the real man'.

This brings us back to the setting of our behavioural objectives in the affective domain. The teacher must be aware of all the necessary stages the child must be taken through in order that it may gradually develop a constructive outlook towards life and build positive values and

attitudes during this period of growth. The various steps in the ladder of affective learning are listed here and explained fully in the pages that follow :

1. Receiving

- Selected Attention
- Willingness to Receive
- Awareness

2. Responding

- Due to satisfaction obtained
- Voluntarily
- Due to outside pressure

3. Valuing

- Commitment to it
- Preference for it
- Acceptance of a value

4. Organisation

- of a value system (setting priorities)

5. Conceptualisation

- acquiring deeper meaning for values

6. Characterisation

- Making values a part of the 'whole person'

The first step in the ladder of learning the affective domain is receiving. For this the teacher has first to expose the child to a variety of situations (stimuli) over and over again. At first the child may be just aware of the stimuli.

The teacher's objectives may be of this kind:

- * The child is aware of the clean environment in the class room.
- * The child is aware of that the teacher is teaching mathematics.
- * The child is aware of the honesty with which children in the class deal with each other.
- * The child is aware of the fact that his classmates are helpful towards him.
- * The child is aware of the celebrations of national days.

- * The child is aware of the rhythmic beauty of a poem.

All these are only at the stage of awareness. This is the first step in receiving. Now the teacher has to create a willingness on the part of the child to receive. The objectives relate now to the next step on the ladder.

- * The child consciously observes the cleanliness of the classroom and its surroundings.
- * The child tries to attend to the mathematics lesson the teacher is taking.
- * The child observes the instances where his classmates exhibit honest behaviour.
- * The child observes the helpful and sharing behaviour of others.
- * The child observes the feelings of others around him on national days.
- * The child gives attention to the rhythmic beauty of the poem.

Going one step further, we will find the child sensitised enough to give selective attention to the situation presented.

- * The child gives particular attention to the cleanliness of the classroom and surroundings and comments on it.
- * The child becomes fully absorbed in the mathematics lesson.
- * The child particularly observes the instances of honest behaviour on the part of the classmates.
- * The child points out instances of helpful behaviour and sharing on the part of the others.
- * The child particularly observes occasions when patriotic feelings are expressed by others.
- * The child gives special attention to the rhythm of the poem.

So far the teacher only tried to make the child attend to what the teacher wanted to give. The process of bringing the child from awareness

to selective attention involves two actions on the part of the teacher. The first is exposing the child to numerous learning experiences. This is done in order to sensitise the child to the value, the teacher wants to inculcate. The second aspect is motivation of the child so that he is willing to attend to that particular learning. The method of presentation or exposition to the learning situation must be selected in such a way that it catches the child's whole attention. This is the most difficult role of the teacher. Once the teacher has taken the child to this stage, the next stage in the developmental ladder is responding. Responding involves three stages. The child responds at times because of some sort of pressure either from the teacher or from other sources. The second stage will find the child voluntarily coming forward to respond and in the third stage the child finds satisfaction in responding to the learning situation. Examples for the first stage are:

- * The child will keep his seat and surroundings clean if the teacher asks him to do it.
- * The child will answer the maths questions if the teacher asks him to do so.
- * The child will find out the owner of the lost pen and return it as directed by the teacher.
- * The child will share his crayons with his classmate as the teacher has requested him to do so.
- * The child will stand to attention when the national anthem is sung because the teacher ordered him to do so.
- * The child reads more poems to find their rhythmic beauty as the teacher has requested him to do so.

The second step of responding is that the student will willingly respond to the learning situations. In other words he gets involved with the situation, not because of external pressures such as teachers, elders, peers or society around him but on his own.

- * The child will put the bits of rough paper and

the pencil shavings in the waste paper basket and keep his class clean without being asked to do so.

- * The child volunteers to answer the questions of the teacher and perhaps tries out more maths problems on his own.
- * The child will voluntarily decide not to copy the homework from his friend.
- * The child will voluntarily help his classmates in his studies.
- * The child will show proper respect and reverence to the National Flag and National Anthem without being told to do so.
- * The child voluntarily takes initiative in learning new poems where he finds a rhythmic structure.

In the above two steps of responding whether the response is due to obedience or is voluntary, it will generate a feeling of satisfaction or dissatisfaction. The response will always be accompanied by an emotional component either of pleasure or pain, enjoyment or frustration. If the response has generated a feeling of satisfaction, enjoyment or pleasure, the child will be happy to repeat that response. It is now up to the teacher to motivate the child by providing him with positive feedback of his growth. Appreciation of good responses is a healthy way of helping the child to feel enjoyment and satisfaction in his work. The child craves for the approval of elders. This approval gives him satisfaction in his own growth (change in behaviour). This satisfaction in responses is present in varying degrees at all levels in the affective domain. It is a most important factor and leads to the third level of responding. Here the child responds to the stimulus because of the joy or satisfaction it provides him.

Some examples of objectives at this level are:

- * The child enjoys keeping order and cleanliness in his own place in the classroom and in the surroundings. If he sees any thing out of place, he finds satisfaction in restoring order and system.

- * The child looks forward to all opportunities to ask questions and answers the teacher's questions in Maths. He enjoys working on Mathematics problems.
- * The child feels happy that he is able to tell the truth to the teacher (that he did not do the home task) without any fear.
- * The child finds happiness in sharing his tiffin with a classmate who did not bring his own.
- * The child feels happy and proud to take part in programmes and functions of national importance.
- * The child enjoys the rhythm in poems and seeks out other poems to compare the rhythmic structures.

The receiving and responding stages of development in the affective domain could be termed as "interest objectives". Thus far a teacher has exposed the child to learning situations, motivated him to respond and sustained his response with the help of positive feedback and appreciation. This creates an interest in the learning situation.

The next stage in the ladder of affective development is valuing. This again involves three stages: the acceptance of a value; preference for that value and finally commitment to that value. Depending upon the enjoyment each type of response provides the child, he attaches a value, or "a worth" to them. He judges the worth of a thing, a phenomena, a principle etc. A child who has given a high value to detective novels, will spend most of his time reading them. At this stage there is a consistency in his response. The objectives at the acceptance level of a value are:

- * The child invariably keeps himself, his place and surroundings clean and appreciates the same cleanliness in others.
- * He does his mathematics lessons regularly with pleasure.
- * The child exhibits honest behaviour on most occasions.

- * The child is most of the time fond of helping his classmates in various ways
- * The child expresses his pride, in the achievements of the nation.
- * The child is fond of reading rhythmic poems very often.

Going a step further when he shows a preference for these values, the objectives might become.

- * Given a choice to select a room for his study, the child will select a clean one rather than an elaborately furnished one.
- * Given a choice to study a Mathematics lesson or a science lesson, the child will study Mathematics.
- * Given a choice to tell the truth to the teacher or take a bribe of chocolates from a classmate, the child will tell the truth.
- * Given a choice to play or to help some weak students in the class, the child decides to help his classmates.
- * Given a choice to take part in a fashion show or in a social work activity, the child prefers to do the social work.
- * Given a choice to buy a novel or poetry book, the child will buy the poetry book.

The next level of valuing is commitment. In acceptance of the value, the child shows a certain consistency in his behaviour, but may change as he learns more. In the level of preference for a value it is still more certain that he will behave as expected. But at the commitment stage, his expected behaviour is a certainty beyond a shadow of doubt. Loyalty to a group, a cause or a principle is a commitment. At this stage, the person not only has a value, but he wants to convince and influence others to accept this value. A committed person is full of drive. He is motivated to action. Examples of the same objectives at this level are:

- * The child not only keeps his surroundings clean but urges others also to do the same irrespective of what others think of her/him.
- * Even at the expense of other subjects, the child absorbs herself in the learning of mathematics.
- * Even if the child knows that she will not be able to secure good marks, the child will not use unfair means in examinations.
- * The child will take any opportunity to help others even sacrificing her own pleasures.
- * The child is not only proud of his country, but urges his friends feel the same way.
- * The child is most often absorbed in poems at the cost of her/his studies in the school.

As the child passes through new situations in life, some of the old values are accepted and integrated into the personality of the child. As he internalises a variety of values, he tries to bring about an ordered relationship between these values. A child may like the taste of cakes as well as ice-cream. Both of them have a value assigned by him. If a choice is provided between the two the child picks up the one to which he has assigned a higher value. Thus he arranges his values in an order.

Another example : a child loves his friend but also values honesty. Depending upon the value he attaches to his love for his friend or to honesty, he may or may not tell a lie to save his friend from a punishment. Thus the child forms an ordered set of values. This value complex gives rise to the attitudes of the child which in turn determines all his activities.

- * After a discussion with a group of students about the need of cleanliness as a virtue to be cultivated in society, the child convinces others of the need for organising a cleanliness week in the school, writes articles on it in the school bulletin and prepares slogans to be displayed.

- * The child builds up a library of mathematics, books, becomes an active member of the mathematics association of the school in order to further her and others' interest in Mathematics.
- * The child exhibits honest behaviour in most of her activities and urges others also to be honest.
- * The child is always on the look out for the needy to help them. The child organises others to carry out social service activities.
- * The child not only expresses pride in the Indian culture; she actively involves herself in cultural activities, even influences others to take active part in them.
- * The child not only enjoys poems herself ; she helps others also to enjoy them.

Along with the organisation of values, conceptualisation of values within the personality of the child also takes place. Examples will explain what is meant by conceptualisation. In the beginning, a child who is committed to the value of honesty considers cheating in examinations as against his value. Later on in his life, with new experiences, he realises that telling lies, bribing and a host of other things also come under the heading of dishonesty. The meaning of honesty as a value starts taking on more and more meaning everyday. This permits the child to relate the new experiences and values to the existing values that he holds. A child with a commitment to social service may initially feel that social service means to help the economically poor class of people. Slowly experiences with other people make him realise that the needy are not only among the poor. There are many among the affluent who need emotional, moral and spiritual support to make their lives more meaningful. Thus the child's value of wanting to help the needy takes on added meaning, making the concept of social work more abstract. A child who considers leadership as a value for himself

(Contd on page 23)

UNDERSTANDING GRAPHS

First two games to be played when students are still learning about plotting graphs.

TANK BATTLES: This is a game for two. Each player uses a grid and has three tanks, on adjoining intersection as shown. The player keeps two 'maps'— one of his own land and the other of the enemy's. The latter is a blank grid at first and gets filled out as the game progresses.

The first player starts by aiming a "bomb" at the enemy and calls out the point at which it falls. The enemy calls out 'hit' if one of his tanks is at that point or 'missed' if that is the case. Thus each player in turn tries to eliminate the three tanks of the enemy to win the game. One round is drawn below to explain further.

It is important for the players to always call the number along the X-axis first and then along the Y-axis. Thus they come to realise that (4,2) is not the same as (2,4).

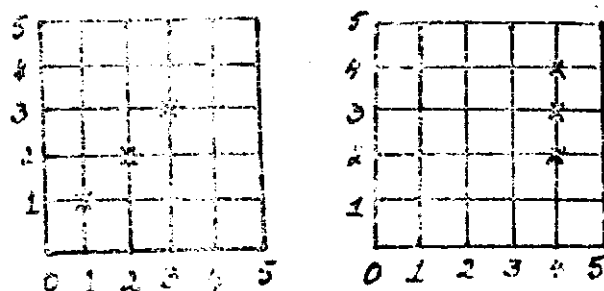
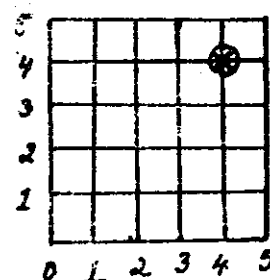


Fig 1: Rita's map of her own land and Arun's map of his own land

Rita starts the game. She aims her bomb at (4,4) and calls out that point. On her blank grid of Arun's land she circles the point. Arun replies 'Hit'; so Rita puts a cross in that circle to show that she has knocked out one of his tanks. Her map of Arun's land will then look like this. (Fig. 2)

It is then Arun's turn. He calls out (2,3), marks the point on his map of Rita's land and waits for her reply. She answers, 'Missed'. So he leaves the circle as it is. His map of Rita's land looks like this. Fig. (3)

Fig. 2



The remaining moves in this game went like this :

Rita : (4,3)

Arun : Hit. And (1,1)

Rita : Hit. And (4,2)

(She guesses that his third tank is nearby)

Arun : Hit, you win !

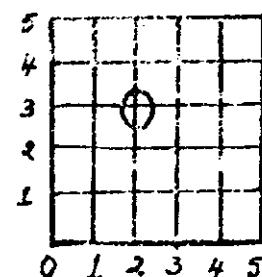


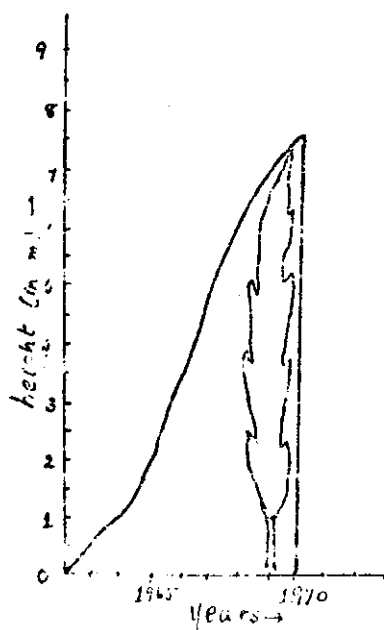
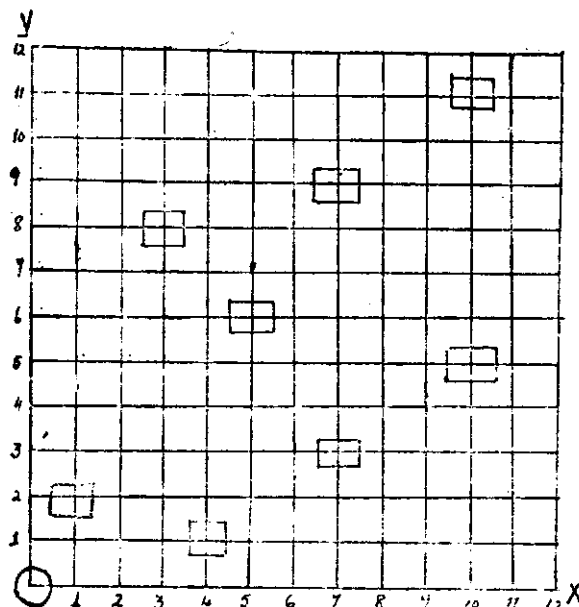
Fig. 3

The second game, CO-ORDINATES, is also played by two. It is a variation of the traditional Snakes-and-Ladders. Two wooden cubes are taken and converted into dice as follows. Each face of the first cube is marked with an X, and each face of the second cube is marked with a Y. These faces are then numbered . . . 0, 1, 2, 3, 4 and 5.

The game itself is played on a large sheet of chart paper or card on which a 12 by 12 grid is drawn. It is numbered from 0 to 12 along the bottom; this line being called the axis of X. It is numbered vertically along the left side; this line being called the axis of Y. Each player has two counters of the same colour. The second counter may be brought into the play whenever the player wants to. The winner is the player who gets both his counters to (12,12) first. To start off each player throws the dice and the player with the highest total score starts. At each throw both dice must be shaken and thrown. A player may then move either of his/her counters according to the throw, taking always the X-score first and the Y-score next.

Before play starts, make sure that the players have understood how to refer to any point. Thus a counter at (9, 2) - is nine steps along the X-axis and two steps in the Y-direction.

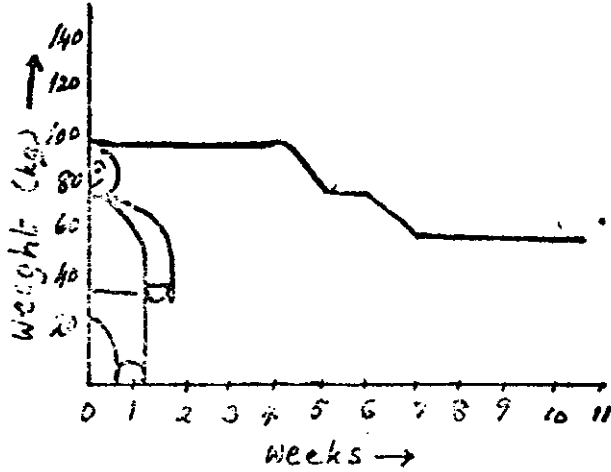
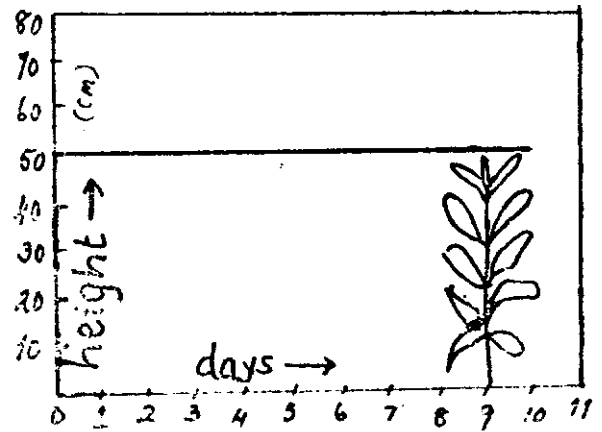
At this stage the penalty boxes may be added. Instructions in them may be 'Miss a turn'; 'Have an extra turn'; 'Go back to (2,2)'; 'Go forward to (7,8)'; 'Return to start' and so on. About twenty-four such boxes will make the game exciting.



It is not enough merely to be able to draw graphs . . . they must have some meaning. Apart from using them in purely mathematical context, children would be interested to find that graphs can be used to communicate a variety of everyday information. In an earlier article (Making Graphs Meaningful by Inderjit Sohi; Pathways; November 1979) some suggestions were made for students of primary classes. You might also like to try out the questions given here to set your students thinking.

1. What happened to the tree in 1970? When was it planted? What happened between these two dates?

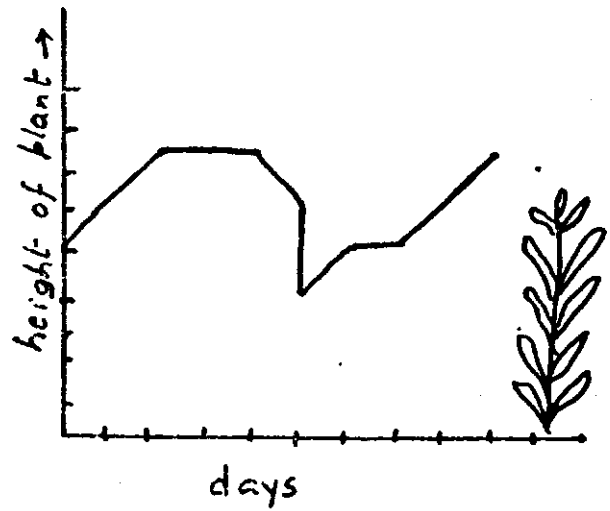
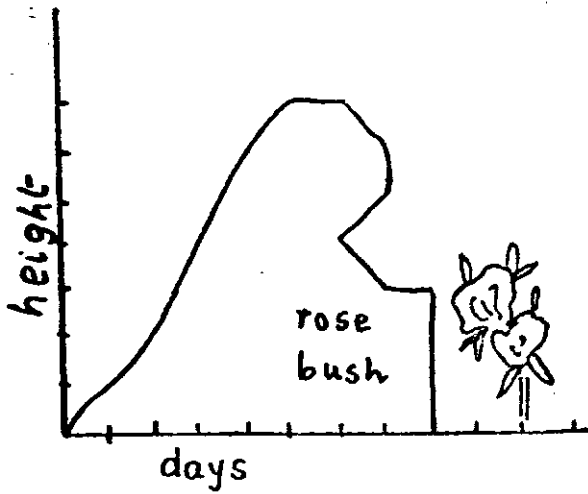
II. When do you think this graph was drawn—in winter, in spring or in the middle of a very hot summer? Why?



III. What does this graph mean?

What did the man do?

IV. What do you think is wrong with these graphs



SIMPLE DOLLS FOR SMALL HANDS

(Adapted from How to make Puppets and Dolls by Felicia Law : Collins : 1975)

Given below are some methods of making dolls using easily available materials. No doubt some of you have already tried some of these. See if you can think up interesting variations.

The Wool Doll is quickly made from a thick handful of woollen strands, all cut to the same length and tied together as shown in the diagram. You can make a lady wearing a long skirt or a gentleman in pantaloons.

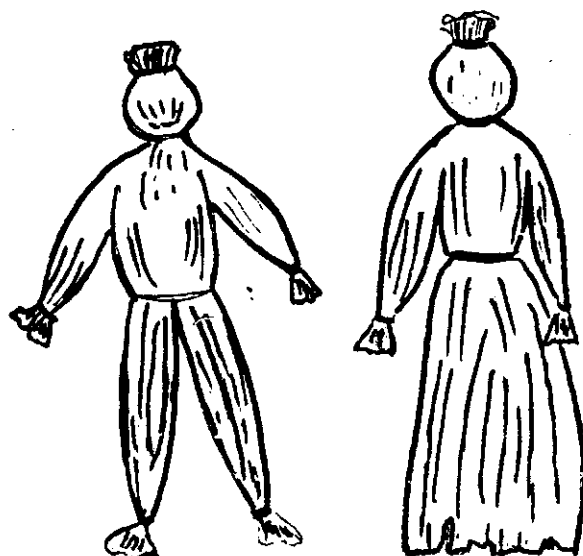


Fig. 1

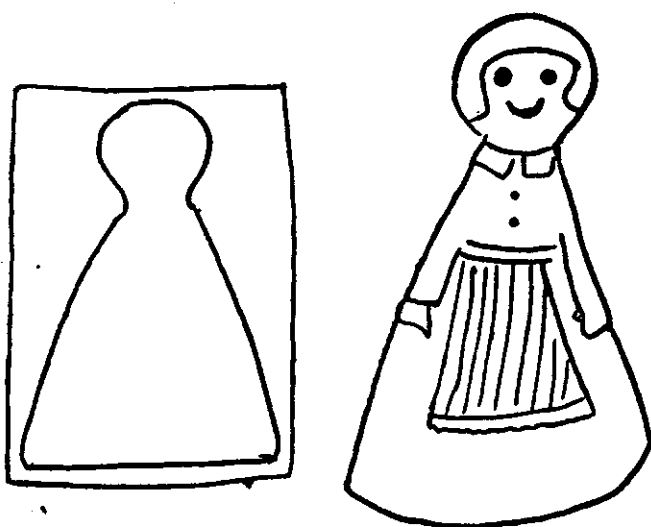


Fig. 2

Keyhole Dolls are made from a very simple pattern. Two paper outlines in the shape of a keyhole (as large as you like) are drawn and fixed on fabric. If desired the front and back can be of two different colours. The shapes are cut out, pinned together from the wrong side and then stitched together. The doll is now turned right side out and stuffed with cotton until it is fat and firm. The gap is then sewn up. Felt pens or fabric paints may then be used to paint in the details of the face and costume.

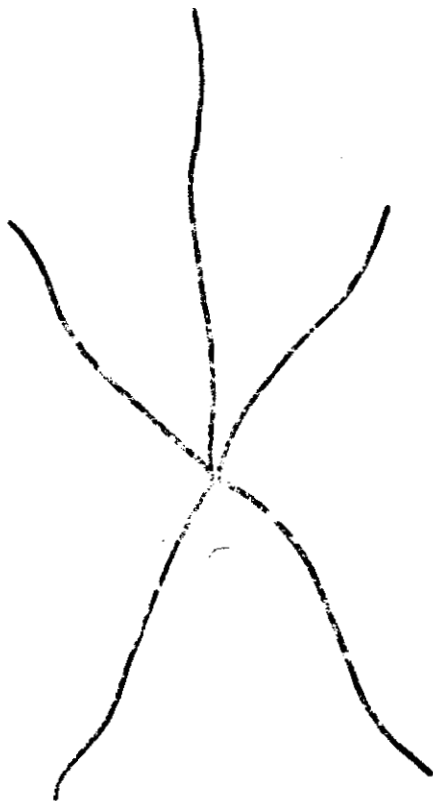


Fig 3a

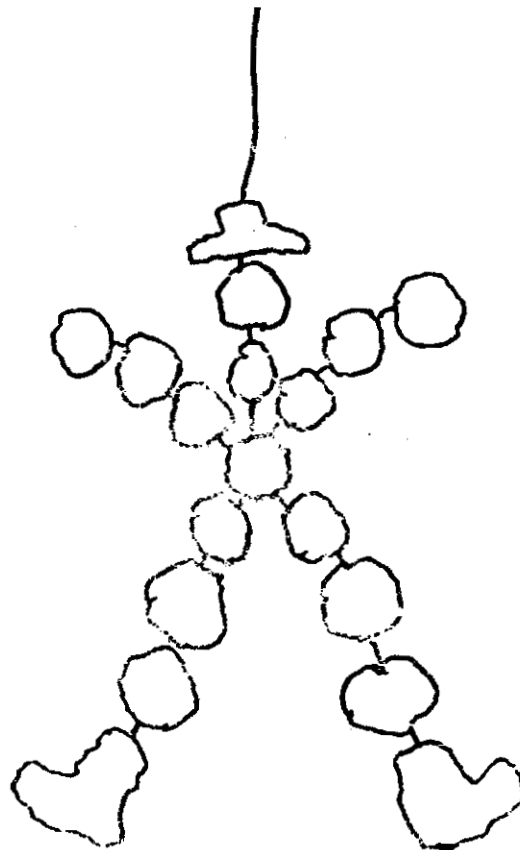


Fig. 3b

A Torn Paper Puppet is made from small scraps of newspaper cut into circular shapes about the size a rupee coin. Nylon thread is knotted together as shown in the figure to form the outline of the puppet. The scraps of newspaper are then stuck on to the thread using collotape.

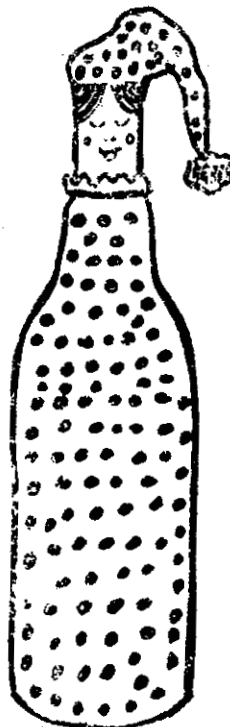
When hung near a window the puppet (fig 3b) moves around in the lightest breeze.



Fig 4

Spooky Ghosts look best hanging from a length of thread in a dark corner of the room. Four or five of them may be combined to form a mobile.

The head is made up of a small ball of newspaper. This is then tied firmly into the middle of a large white handkerchief. Black felt pens can be used to draw the features on the white cloth. (Fig. 4)



A Bottle Doll is improvised using an empty squash bottle as the base. The head is made out of a toilet roll tube or a sock stuffed with cotton wool fixed in the mouth of the bottle. The rest of the sock may be pushed into the bottle or even draped outside it to form a dress for the doll. It is dressed using scraps of coloured paper or fabrics. (Fig. 5)

Fig. 5

PERSONALIZING EDUCATION

by Sr. Valerie, A. C.
Principal, Sahoday School

In order to provide adequate educational opportunities to children from less privileged homes, Sahoday School, in 1976, reserved fifty per cent of its seats for students from low income groups.

Commencing with that experiment, the Principal and Staff were constantly looking out for other challenges. Why not swerve from the traditional method of teaching children? If teaching and learning were to be joyful experiences within the reach of teachers and children, then we ought to look for something new—and find it we did in introducing Personalized Education.

Peter Poveda, an educator with a vision made a contribution to the world community. He believed in the prime importance of personal relationships and sought to develop a school atmosphere where the child would learn to be natural and to relate to others in a climate of freedom.

In 1977 the students of Standard II were initiated into this new system, referred to as P.E. for short. This was preceded by a seminar for the staff and by a meeting with parents for the purpose of introducing P. E. to them.

With this background in mind, let me move into the practical aspects of P.E. On the first day of the week, the teacher puts up on the black board the syllabus for the week. Taking up his file, which contains punched sheets of paper, the child next decides, which subject he wishes to tackle. There are five groups in a class of forty students and simultaneously you will find groups working at different subjects—Maths, English, Hindi, Social Studies and Science. Eight identical activity cards are typed out in each subject. To respect the individuality of the child, he is allowed

to choose each day, the subject he wants to study and to move at his own pace—no spoon-feeding. Using the text book for reference, he reads the lesson prescribed and then starts work independently. The child personalizes his education by making it his own. He is not the passive recipient of knowledge as in the traditional method, but he is the explorer, the inventor, the independent hero in the process. He works thus for an hour. He is responsible for the completion of the syllabus for that week.

The role of the teacher now changes from that of a mere instructor to that of a consultant, a guide, an adviser, a friend and one who shares in the child's experience. As she moves around she takes note of individual children, their growth and development. The teacher is the instrument through which the child's search for knowledge is guided and the child is the active learner. Another advantage of group learning is the growth of inter-personal relationships. Children learn to be of help to each other. Every fortnight the class is re-grouped.

At the end of the hour, the files are submitted to the teacher for correction. Slow workers manage to take time off at other times in the day to complete their work. Extra reading material for further reference should be provided for the quick learner.

The students next squat on the floor while the teacher helps them to evaluate their hour of activity. After a ten-minute evaluation, she takes up one of the subjects for discussion. New concepts are explained in detail. This goes on for another hour after which a regular schedule which includes Moral Instruction, Yoga, Art & Craft, Singing and Games goes on. After noon periods are sometimes used for written work in

languages, explaining new concepts in science and maths to the whole class, drills in grammar and mathematics etc.

After this long activity period (often about two hours or more, about fifteen minutes is set aside for 'normalization'. Any of the following may be done depending on the needs of the class.

- * Difficulties of the children in relation to their work are settled. They are encouraged to give their own solutions.
- * They are allowed to share their experiences at home. The teacher can share hers with them too.
- * Cleaning, arranging and decorating the classroom may also be done in an atmosphere of silence.

'Normalization' is also effective at the start of the Activity period to set the children in a mood of work and concentration by using games of 'Let's pretend'. The child loves to imagine, fantasize and imitate, hence movements or exercises are used which aim at co-ordinating a child's mental and physical growth. Examples of these are the rain drop, a seed growing into the plant, the hop of the kangaroo, the flight of birds and so on. Pent-up energies are thus released. Prompt reflexes, imagination, creativity, concentration and observation are developed—thinking while moving and moving while thinking. Such movement exercises are particularly useful for Standards II and III.

Every detail is not spelt out here; one can always adjust and adapt to what is most feasible. At Sahoday, P. E. is followed up to Standard V and a 'Go Ahead' signal has been received from the staff and students, hence it will be continued in Standard VI from next year.

I give below some reactions from the staff and students.

"In the P.E. method of education the boys become more creative in their thinking. They learn a lot by helping each other and asking ques-

tions. The relationship between teacher and the student is more close. They are not shy; they are outspoken even to visitors. It creates an atmosphere of love and friendship where they want to share their knowledge with each other".

—Mrs. Rita Mason & Sr. Inez;
Std. V. A. & B.

The students of Standard V say :

- * "We can choose the subject we wish to do and because it is our own choice, we are interested in the subject also.
- * Teachers are ready to help us; they love us; they are polite.
- * We are busy in our work.
- * Teachers try to help the weaker ones and give them chances.
- * We can help the weaker students.
- * Through this method a student can build his own career."

"It improves the relationship between the teacher and the students, permits growth of individuality, promotes social awareness and gives children freedom to choose subjects of interest. It gives them freedom of speech and they can evaluate themselves with the help of the teacher. Thus it promotes understanding and knowledge."

Teachers of IV A & B

The boys say :

"We learn everything ourselves"—Archit

"We can be independent in our studies."—Rahul

"I don't feel bored during P.E. and I feel I am doing by best."—Sandeep

"I enjoy it because I can learn many more things"—Ashwani

"I like it because we discuss many things and it increases our general knowledge."—Sajeev

"We learn many new words."—Manu Kapoor

"We can answer the questions ourselves."

—Ramesh Krishnan

"We work independently." Ashish Vohra

"We sit in groups. When we have any difficulty we can discuss and can help one another". Sam

"In the other method, the teacher tells the children but in this we do things ourselves. It increases our knowledge. We can improve our writing also."—Paramjit

"We can solve our difficulties."—Tara Chand

"In the other methods the teacher dictates everything; here we do everything ourselves."

—Vikram

"We can choose our subjects."—Ashish Dayal.

"The children under the P.E. System of study are generally outspoken, confident, full of creative thinking and brotherhood. The teacher-student relationship is very close, almost on a personal level, because this system provides us with a lot of time for discussion and personal talk."

—Mrs. Indra Sud III-A

"Every individual is fully involved in his work. The children feel more active, original and are more balanced. They have full freedom to think and express their views in their own way. They enjoy this way of learning."

—Mrs. Neelam Arora, II-A

"* P.E. provides individual attention to each child.

* Offers maximum scope for self-thinking and independent effort on the part of the students.

* Provides maximum opportunity for interaction between child and teacher.

* Develops a sense of self-confidence in children.

* Provides opportunity for unrestricted, free and frank expression of views during the classroom discussion.

* Encourages creativity in children."

—Asha Halan, II-B

The boys of Class II say :

"I can find out the answers myself."

"I don't have to look up at the blackboard every time."

"It is very interesting."

"I can draw."

"P.E. helps us to understand. A lesson is made more simple. P.E. makes a student more intelligent."—Anup Kujur

"It helps me get more knowledge about the topic. We feel mentally alert and active."

—Tarun Kumar Paliwal.

(Contd. from page 6)

"Let's go along, long time back in history", I said. "What would these people have been good at? How would they have had contacts with other countries?"

"They would have been pioneers in ship building" said Amit—proudly using a new word he had learnt.

"Just like the Peruvians" interjected Atul, remembering the Kon-tiki voyage he had read about in his English lesson.

"And they would have used coconut trees to build the boats, wouldn't they?" asked Renuka. She must have recollected how the Kontiki was built with balsa wood.

"Would this country have been attacked by invaders?"

"Invaders". Don't know" said Sanjeev, thinking about it.

"Invaders would surely have come because this island would have been fertile. But wouldn't the people have spotted them if there was a big fleet? I think, traders might have come—they would not be fighting and trade brings money also" concluded Sanjeev.

"There you are!" I thought delightedly, "you have brought the discussion just where I wanted it to be!"

I congratulated the children heartily on their wonderful 'detective' ability and carried on with the lesson about how Indian traders went to the South East Asian Islands to establish trade and how they settled down there.

I was full of excitement as I related this to my son, late in the evening.

"Oh, that?" he said in a bored voice, "we had to do something like that too"

"When?" I asked, a little deflated.

"In class X" he said.

"Oh, good!" I said, happy again.

Incidentally, I was teaching ten-year olds of class VI.

(Mrs. Srinivasan works in Ramjas School, R. K. Puram, Delhi. Her earlier article on Evaluation in Environmental Studies appeared in the August 1980 issue of PATHWAYS.)

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(Contd. from page 14)

starts consistently building himself up as a public speaker, standing for class elections and trying to take charge of all activities. Slowly new experiences make him realise that leadership is not only public speaking or being an elected leader; its wider meaning includes influencing people around him and helping them to grow in their own way. This gives rise to a new concept of the value of leadership to the child.

The final stage in the development of the individual is the **Characterisation by a value system**. At this stage the child has formed an ordered set of values which has become a part of the personality of the child. During the internalisation of these values and its organisation, the child's behaviour has been controlled by this hierarchy of values for a sufficient time so that the child has accepted that behaviour pattern as an integral part of him. The child acts consistently according to the value he has internalised. At this stage, we can predict the behaviour of the child in situations where the particular value comes into play. He can be described and characterised as a person by his values at this level. The integration of these values, beliefs, ideas and attitudes form the total philosophy of that person.

To sum up, let us consider any one affective goal to be developed in a child, say cooperative endeavour. Given below are a series of graded

objectives the teacher should plan so that cooperative endeavour becomes a part of the child's character.

- (i) The student is aware of the fact he is assigned to a group in order to conduct an economic survey of the neighbourhood. (Receiving).
- (ii) The student is willing to work with the assigned group to prepare exhibits for an exhibition. (Responding)
- (iii) The student expresses joy in working with a group to take up any assigned task (Valuing)
- (vi) Given a choice to complete a task independently or in collaboration with somebody else, he prefers the latter (valuing).
- (v) Given opportunity, the student creates all possible situations where he could work with others in a cooperative manner (valuing).
- (vi) The student will be willing to sacrifice some personal comforts for the sake of cooperating with others in a project, (organisation of a value system)
- (vii) Most of the time, whenever tasks are assigned, the student will be seen working with others as his team mates. (Characterisation).

YOUR ATTENTION PLEASE

PATHWAYS is issued four times a year - in February, April, August and November. The annual subscription is Rs. 6/- for all readers, both in Delhi and outside. Individual copies may be obtained for Rs. 1.50 plus postage. Please send your Money Orders to the Educational Planning Group, 4 Raj Niwas, New Delhi-110054

Owing to frequent losses in the post, we have decided to post individual copies to teachers of Delhi Schools. When you renew your subscription this year, please make sure to let us have your correct residential address, including the Pin Code.

Contributions from teachers describing new ideas tried out, their problems and other experiences are most welcome. Please send them to me before the 20th of the preceding month.

—Gay tri Moorthy